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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/755,464

01/13/2004

Miguel Peeters

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12/05/2007

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.  
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EXAMINER

THOMPSON, JR, OTIS L

ART UNIT

PAPER NUMBER

4183

MAIL DATE

DELIVERY MODE

12/05/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/755,464	<b>Applicant(s)</b> PEETERS ET AL.	
	<b>Examiner</b> Otis L. Thompson, Jr.	<b>Art Unit</b> 4183	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,8,10 and 12-18 is/are rejected.
- 7) ☒ Claim(s) 3-7,9 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/7/2004</u> .  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 8, 10, 12, 13, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Antoine (US 2001/0036274 A1) in view of Carlson (US 6,907,062 B2).

3. Antoine discloses an asymmetric digital subscriber line (ADSL) in which a scrambler repetitively generates a 511-bit pseudo-random sequence in order to derive a pseudo-random sequence of DMT (Discrete Multi Tone) data symbols (Column 1, paragraph 2).

Antoine also discloses a PRBS generator that is in scramble mode (Figure 1, label PR-Gen1) with a selector (controller) (Figure 1, label SEL) coupled to a scrambler (Figure 1, label SCR1) and an embedder (bit sequence module) (Figure 1, label EMB1) that generates at its output a pseudo-random sequence of multi-carrier data symbols (Figure 1, label PRMS1) (Column 5, paragraph 19).

Antoine further discloses a transmitter (Figure 1, label MC-TX) and a receiver (Figure 1, label MC-RX). Data is transmitted across the channel from the transmitter to the receiver.

Antoine does not specifically disclose a medley signal generator, which receives the output PRBS (pseudo-random bit sequence) and generates a Medley signal based on the output, or an additional mode in which the PRBS generator can operate thus allowing the generator to be in combination mode.

However, Carlson discloses a PRBS Medley generator, for use in ADSL modems, which serves the purpose of defining the Medley signal used for upstream and downstream modem training (Column 1, lines 24-26; Column 3, lines 17-20). Carlson further discloses that specific PRBS generators are employed in ADSL modems that conform to the ITU Recommendations G.992.1 and G.992.2. The PRBS generators generate bit patterns that repeat every 511 bits downstream and every 63 bits upstream also for the purpose of modem training (Column 3, lines 53-60).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to combine the teachings of Antoine with the teachings of Carlson in order to train the modem in the upstream and downstream directions.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Antoine (US 2001/0036274 A1) as applied to claim 1 above, and further in view of Joo (US 2001/0022810 A1).

6. Antoine discloses the claimed invention above. Antoine does not specifically disclose a Medley signal generator that includes a Medley tone encoder that modulates four-quadrature amplitude modulated (4QAM) symbols based on received output PRBS.

However, Joo discloses, referring to figure 6, a 4QAM signal generator 650 whose purpose is to perform 4-QAM encoding on signal output generated from the tone generator 630 (Columns 9-10, paragraphs 47-48).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to combine the teachings of Antoine with the teachings of Joo in order to perform 4-QAM encoding.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson (US 2003/0012272 A1), referred to as Carlson 1, in view of Carlson (US 6,907,062 B2), referred to as Carlson 2.

9. Carlson 1 discloses a transmitter in a data communications system that uses a PRBS generator to generate a plurality of ADSL signals. The transmitter computes the Peak to Average (PAR) ratio of each of the generated ADSL signals, and the ADSL signal having the lowest PAR is determined. The corresponding state of the PRBS generator is noted, and the signal having the lowest PAR, or at least the corresponding state of the PRBS generator, is then used to generate a Q-mode signal (Abstract). The indication of the signal having the lowest PAR output by the transmitter is communicated to a remote receiver, and is used by the remote receiver to receive the non-data mode signal (Column 2, paragraph 10). Carlson 1 does not specifically disclose that the PRBS can be output to seed generation of a Medley signal in the ADSL modem.

However, Carlson 2 discloses a PRBS Medley generator, for use in ADSL modems, which serves the purpose of defining the Medley signal used for upstream and downstream modem training (Column 1, lines 24-26; Column 3, lines 17-20). Carlson further discloses that specific PRBS generators are employed in ADSL modems that conform to the ITU Recommendations G.992.1 and G.992.2. The PRBS generators generate bit patterns that repeat every 511 bits downstream and every 63 bits upstream also for the purpose of modem training (Column 3, lines 53-60).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to combine the teachings of Carlson 1 with the teachings of Carlson 2 in order to train the ADSL modem in the upstream and downstream directions.

***Allowable Subject Matter***

10. Claims 3-7, 9, and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Betts (US 2001/0031017 A1) discloses a discrete multitone interleaver system for efficiently communicating data despite noise affecting a discrete multitone modulation (DMT) system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Otis L. Thompson, Jr. whose telephone number is (571)270-1953. The examiner can normally be reached on Monday to Thursday 7:30 am to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Len Tran can be reached on (571)272-1184. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Otis L Thompson, Jr./  
Examiner, Art Unit 4183

November 26, 2007

/Len Tran/

Supervisory Patent Examiner, Art Unit 4183